ODOR MANAGEMENT PRACTICES IN CALIFORNIA: A SURVEY OF LOCAL ENFORCEMENT AGENCIES

WINTER 2000

Developed by
California Polytechnic University, San Luis Obispo and
California Integrated Waste Management Board

LEA Phone Survey on Odor Management Practices

DISCLAIMER:
Survey results will be compiled. No survey information will be released that identifies an individual participant. Information concerning odor management collected from this survey will be used to develop a best management practices guidance document for industry and other interested parties. The guidance document is being developed by California Polytechnic University, San Luis Obispo under contract with the California Integrated Waste Management Board.

ODOR MANAGEMENT - PHONE SURVEY OF LEAs
WINTER 2000

Date: _____

Jurisdiction: _____

Your Name and Job Title (Optional): _____

Number of Years with the LEA _____ years

Part A: OPERATIONAL DESCRIPTION (questions 1 – 8):

The purpose of this section is to obtain information on the types of organic material handling operations in your jurisdiction. The operational descriptions will provide basic background information for understanding characteristics of the different types of operations. This will assist in making correlations and drawing conclusions that may be incorporated into the guidance document being written for the California organics industry and regulators.

1. **Are there organic material handling operations and/or facilities in your jurisdiction?** *(Check one)*

( ) a. Yes
( ) b. No ***(proceed to question 8)***
( ) c. I don't know

2. **What are the permitting tiers for the existing sites in your jurisdiction.** *(If you have an idea of the number of sites, please approximate and fill in the blank)*

[ ] a. Full: There are _____ facilities with a full permit, of which, _____ are located on landfills.

[ ] b. Standardized: There are _____ facilities with a standardized permit.

[ ] c. Registration: There are _____ facilities with a registration permit.

[ ] d. Notification: There are _____ operations in the notification tier.

[ ] e. Excluded: There are _____ operations that are excluded.

[ ] f. I don't know which tiers.

3. Check the types of operations/facilities in your jurisdiction?
(Check as many as applicable)

[ ] a. Compost, **not** on a landfill
[ ] b. Compost, on a landfill
[ ] c. Mulch
[ ] d. Chip & Grind
[ ] e. Vermicompost
[ ] f. Mushroom production
[ ] g. Other *(explain)*, there are also these types of operations in this jurisdiction:
_____

4. What types of feedstock are usually handled at the operations/facilities in your jurisdiction?
***(Check as many as applicable)*:**

[ ] a Green/curbside
[ ] b. Green/landscaper
[ ] c. Green/transfer station
[ ] d. Green/agricultural
[ ] e. Biosolids
[ ] f. Wood
[ ] g. Manure
[ ] h. Animal
[ ] i. Food waste
[ ] j. Municipal Solid Waste (MSW)
[ ] k. Other feedstock being handled is*(identify)*: _____

5. What types of feedstock seem to create the most odor problems in your jurisdiction?
(Please check as many as applicable):

[ ] a. Green/curbside
[ ] b. Green/landscaper
[ ] c. Green/transfer station
[ ] d. Green/agricultural
[ ] e. Biosolids
[ ] f. Wood
[ ] g. Manure
[ ] h. Animal
[ ] i. Food waste
[ ] j. Municipal Solid Waste (MSW)
[ ] k. Putrid Feedstock (stored too long, rotting and decaying)
[ ] l. Contaminated Feedstock (feedstock w/ unwanted materials, like leaves w/ food waste)
[ ] m. Other *(explain)* the feedstock that creates the most odors is mainly: _____
[ ] n. No feedstock creates odor problems in the jurisdiction
[ ] o. I do not know if any feedstock type is creating odor problems in the jurisdiction

PART B: ODOR MANAGEMENT (questions 6 –9):

This section is designed to get your opinion on which operational controls are effective in controlling odors. We would like to get information on the effectiveness or ineffectiveness of odor controls in use or that have been used in your jurisdiction. The next section, Part C, requests information about odor detection/monitoring programs.

6. To the best of your knowledge, which are all the odor management controls currently used by operators in your jurisdiction? *(Please check all the odor management controls currently in use or seasonally used to reduce odors)*

[ ] a. Reduce amount of time feedstock is stored
[ ] b. Manage C:N ratio
[ ] c. Manage pH
[ ] d. Manage moisture
[ ] e. Refuse to accept loads of certain feedstock types , (examples: grass, putrid wastes, etc)
[ ] f. Refuse to accept contaminated loads, (example: green material with food and plastic bags
[ ] g. Process in an enclosed area
[ ] h. Turn windrows at certain times of day
[ ] i. Turn windrows when wind is away from surrounding populations
[ ] j. Use biofilters
[ ] k. Use odor masking agents
[ ] l. Use odor neutralizing agents
[ ] m. Use public outreach programs to educate neighbors about your operation
[ ] n. Other odor control *(explain)* The following methods to control odors are:

_____

[ ] o. Other odor complaint control *(explain)* The following methods to reduce odor complaints are:

_____

7. Which odor controls have been used (past and present) and how effectively did they control odors? Please check all the ones you have seen used and rate the effectiveness of each one in reducing odors and/or odor complaints?
***(rate each one, "most effective" to "doesn't work")*:**

[ ] **a. Reducing the amount of time feedstock is stored, to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **b. Managing C:N ratio, to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **c. Managing pH, to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **d. Managing moisture, to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

7. (continued) Which odor controls have been used (past and present) and how effectively did they control odors? Please check all the ones you have seen used and rate the effectiveness of each one in reducing odors and/or odor complaints?
***(rate each one, "most effective" to "doesn't work")*:**

[ ] **e. Refusing to accept loads of certain odiferous feedstock types, to control odors is: (examples: grass, putrid wastes, etc)**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **f. Refusing to accept contaminated loads to control odors is:**
(example: green material with food and plastic bags)
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **g. Processing in an enclosed area to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **h. Turning windrows at certain times of day to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **i. Turning windrows when wind is away from surrounding populations to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

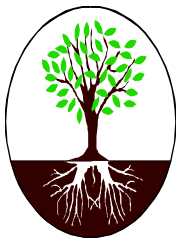
[ ] **j. Using biofilters to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **k. Using odor masking agents to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **l. Using odor neutralizing agents to control odors is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **m. Odor complaints: using public outreach programs to reduce odor complaints is:**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion

[ ] **n. Other odor control:** ***(identify and rate)*****_____**
( ) most effective ( ) very effective ( ) effective ( ) not very effective ( ) doesn't work
( ) no opinion



7. (continued) Which odor controls have been used (past and present) and how effectively did they control odors? Please check all the ones you have seen used and rate the effectiveness of each one in reducing odors and/or odor complaints? ***(rate each one, "most effective" to "doesn't work")*****:**

[ ] **o. Odor complaint reduction, other:** ***(identify and rate)*****_____**
( ) most effective ( ) very effective ( ) effective ( ) not very effective
( ) doesn't work ( ) no opinion

8. Do any operators in your jurisdiction have written odor management procedures for any types of solid waste operations? *(Check one)*
( ) a. Yes (I have seen a copy)
( ) b. No (including probably not)
( ) c. I don't know

9. Do you think a written odor management plan should be a regulatory requirement in California? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

PART C: ODOR DETECTION & MONITORING (Questions 10 – 13):

The previous section asked about methods used for controlling odors. This section requests information on programs or equipment used to detect the presence of odors during odor investigations or routine odor monitoring, including the human nose.

10. Which odor monitoring techniques or detection equipment do you most commonly use during odor investigations or routine odor monitoring?
(Check one or list the type of equipment or program that you use)

( ) a. The human nose
( ) b. Other monitoring equipment *(specify)*_____
( ) c. I do not monitor for odors
( ) d. I don't know

11. Do any operators in your jurisdiction have written odor monitoring programs, including odor monitoring as part of the odor management plan? *(Check one)*

( ) a. Yes (I have seen a copy)
( ) b. No (including probably not)
( ) c. I don't know

12. Do you think a standard monitoring tool, such as an odor panel, should be provided to investigate or monitor for odors from organic material handling sites? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

13. Do you think odor monitoring at organic material handling sites should be a regulatory requirement in California? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

PART D: ODOR COMPLAINTS (questions 14 – 26):

This section requests information on the number of odor events and the time of year the odor events occurred. We are asking about odor events rather than odor complaints since numerous complaints may be received for the same odor event. The number of odor complaints does not necessarily reflect the number of off-site odor occurrences, since many complaints may be received for one event and/or the odor and its source may not be verified. Additionally, complaints about odor may be related to siting problems, including other odor sources in the area rather than operational problems.

This section gathers information on odor events and when the event occurred. The information will help to understand more of the circumstances surrounding odor events.

14. Have there been odor complaints about <u>non-composting</u> organic material handling operations/facilities in your jurisdiction, (example: chip & grind, mulch)? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

15. Have there been odor complaints about <u>compost producing</u> organic material handling operations/facilities in your jurisdiction, excluding operations such as mushroom production? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

16. Have there been odor complaints about <u>excluded composting</u> organic material handling operations/facilities in your jurisdiction, such as mushroom production and other agricultural compost production? *(Please check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

17. Which agency do you think should investigate odor complaints about composting and similar organic material handling sites? *(Check one)*

( ) a. LEA (the solid waste local enforcement agency that is certified by CIWMB)
( ) b. ARB (AQMD, APCD etc)
( ) c. other: _____
( ) d. I don't know

18. Do you have a complaint investigation protocol that you would send to CIWMB as part of the survey? *(Check one)*

( ) a. Yes, I will mail CIWMB a copy of our complaint investigation protocol.
( ) b. No
( ) c. You may review the protocol in our EPP

19. In 1999, <u>approximately</u> how many odor events occurred? (An event is the number of days complaints about odors from organic material handling operations were received by your agency including those received from another enforcement agency) *(Please check one)*

( ) a. 0 odor events
( ) b. 1-20 odor events
( ) c. 21- 50 odor events
( ) d. 51-100 odor events
( ) e. 101-500 odor events
( ) f. over 500 odor events
( ) g. I don't know

20. In 1999, which season(s) were most complaints received?
(Please check as many as applicable)

[ ] a. Fall (September, October, November)
[ ] b. Winter (December, January, February)

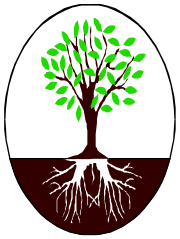
[ ] c. Spring (March, April, May)
[ ] d. Summer (June, July, August)
[ ] e. Throughout the year, not just one season
[ ] f. Zero, no odor events occurred
[ ] g. I do not remember when most odor events occurred.

21. What is the <u>required</u> buffer zone around organic material operations/facilities?
(Check one)
( ) a. Under 100 ft
( ) b. 100 ft. - 200 ft.
( ) c. Over 200 ft, within 1000 ft
( ) d. Over 1,000 ft.
( ) e. There are no required buffer zones.
( ) f. I do not know if buffer zones are required.

22. Did odor complaints begin or increase with additional housing developments?
(Check one)
( ) a. Yes
( ) b. No
( ) c. I don't know

23. **Have any facilities recently closed due to public opposition stemming from odor problems?**
(Check one)
( ) a. Yes
( ) b. No
( ) c. I don't know

24. What are the other odor sources in your area that may be the cause of the complaints? *(Check as many as applicable)*
[ ] a. Chicken farms (egg or meat production)
[ ] b. Dumpsters or a waste transfer station
[ ] c. Landfill
[ ] d. Dairy
[ ] e. Ranch
[ ] f. Sewage treatment plant
[ ] g. Industrial – processing plants
[ ] h. Other _____
[ ] i. There are no other odor sources
[ ] j. I don't know if there are other odor sources



25. In your opinion, in the past few years, has your surrounding community become <u>*more accepting*</u> of composting operations, or has the public become <u>*less accepting*</u> of composting operations? *(Check one)*
( ) a. Much more accepting
( ) b. More accepting
( ) c. Same, just as accepting
( ) d. Less accepting
( ) e. Much less accepting
( ) f. I don't know

26. In your opinion, which of the following would be useful in solving odor problems?
(Please check as many as applicable)

[ ] a. More effective odor control tools (equipment, chemicals etc)
[ ] b. Odor detection equipment that is more effective and reasonably priced
[ ] c. Operators have to be trained and certified
[ ] d. Providing guidance to operators on effective odor control for operations
[ ] e. New and stricter regulations such as mandated odor amounts that cannot be exceeded
[ ] f. Stricter enforcement of current standards
[ ] g. More public relations to increase public acceptance of organic materials and odors
[ ] h. Other: *(explain)***To solve odor problems, the following should be done:**

_____

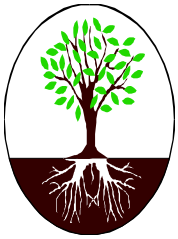
_____

_____

_____

_____

_____



PART E: ODORS and ILLNESSES (questions 27-34):

Although there is no confirmed relationship between negative health effects and odors from composting and other organic material handling operations, there is concern in some communities. The purpose of this section is to gather some initial information on illnesses associated with exposure to odors. Concerns have been expressed that odors indicate the presence of aspergillus. There is no confirmed relationship between odors and aspergillus exposure. There may be individuals that are sensitive to dust, increasing the risk of allergies. Aspergillus exposure may negatively effect individuals with compromised immune systems. The questions in Part E regarding health are to further assist in determining if there is a growing concern about possible negative health effects and odors from composting and other organic material handling operations.

27. Have you or other inspection staff in the jurisdiction experienced any symptoms/illnesses associated with on-site exposure to odors or processing at organic material handling sites? *(Check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

28. Do you know of any persons, staff or employees of any handling operations in the jurisdiction who have experienced lung type illness or symptoms related to exposure to odors or processing at organic material processing sites? *(Please check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

29. In the last year, during routine inspections or investigations, how many employees at an organic material handling site(s) mentioned that they experienced symptoms/illnesses associated with on-site exposure to odors or processing at organic material handling sites? *(Check one)*

( ) a. 0, Not one employee at organic material processing site(s)
( ) b. 1-10 employees at organic material processing site(s)
( ) c. 11- 50 employees at organic material processing site(s)
( ) d. 51-100 employees at organic material processing site(s)
( ) e. over 100 employees at organic material processing site(s)
( ) f. I don't know

30. In the last year, how many persons in the community complained that they have experienced symptoms/illnesses associated with exposure to odors or processing at organic material handling sites? *(Please check one)*

( ) a. 0 persons
( ) b. 1-10 persons
( ) c. 11- 50 persons
( ) d. 51-100 persons
( ) e. over 100 persons
( ) f. I don't know

31. Did anyone seek medical attention for illness or symptoms related to exposure to odors or processing at organic material processing sites? *(Please check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

32. If you answered yes to question 29, did you receive a copy of the medical report(s)? *(Please check one)*

( ) a. Yes
( ) b. No
( ) c. I don't know

33. For the most recent incident(s), check all that apply in the description of any illnesses/symptoms you or other persons said they felt. ***(Please check as many as applicable)***

[ ] a. Nausea
[ ] b. Vomiting
[ ] c. Headache
[ ] d. Sore throat
[ ] e. Cough
[ ] f. Eye irritation
[ ] g. Irritated sinuses
[ ] h. Other symptom described by the effected person _____
[ ] i. I do not know what the symptoms were
[ ] j There haven't been any illnesses

34. Please include any additional information regarding odor from compost/mulch operations that may be beneficial to odor management in California:

_____

_____

Your responses will remain confidential. The survey information is being compiled by California Polytechnic State University San Luis Obispo for the California Integrated Waste Management Board. The compiled survey results will be posted on the California Polytechnic State University San Luis Obispo webpage, at URL http://ceenve.calpoly.edu/cotabioaero/odormgmtsurLEA0219.html additionally, compiled survey results will be posted on the California Integrated Waste Management Board's website at URL http://www/ciwmb/ca.gov

To mail the survey:

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Questions or comments? Call Rachel Morton, Odor Survey Project Manager for CIWMB at (714) 449-7079. **Thank you for your participation.**